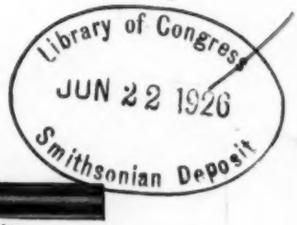
AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 124. NO. 25.
WHOLE NO. 3581.

NEW YORK, SATURDAY, JUNE 19, 1926

Subscription, $3 Per Year
$4 Canada $5 Foreign



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Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. & Treas. C. S. MYERS, Vice-Pres. A. M. GLEASON, Sec'y.

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Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL, June 19, 1926. Vol. 124. No. 25.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

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GAS JOURNAL

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Vol. 124. No. 25. NEW YORK, JUNE 19, 1926 Whole No. 3581

Office Methods in Gas Companies

1.—Office procedure fundamentals—pending file and follow-up

G. L. Harris

Introduction

As men and women deal with each other in business they quickly form definite opinions of each other. These opinions they condense into phrases which may mean money when interpreted in terms of assets or liabilities.

When a man says of another: "His word is as good as his bond"; "You can rely on him"; "He knows his business"; "If he says so, it s right," the statement is backed by experience. And when a community feels and talks in that way about its gas company, the attitude reflected is a tremendous asset, because only a successful, well managed gas company can hope to secure this attitude.

Public utilities in general realize the value of customer good will, and they have been conscientiously striving to secure it. They have advertised Service, talked Service, lived Service, and many of them have succeeded in being spoken of in phrases which are assets instead of liabilities.

"Asset Phrases" Result of Good Will

These "asset phrases" are the result of good will. Good will is based on respect, and respect is the result of confidence. Secure the confidence of your customers and you hae gone a long way toward securing their good will. That is why the point of daily contact with the public, the office where the gas company meets its customers, is so important.

To those of us who are intimately connected with the gas company, it may seem surprising that the customer ordinarily pays as little attention to us as he does. But the fact is, that when a customer talks to a representative of the gas company, something unusual has happened. The customer's daily routine is disturbed, otherwise he would think—consciously—of the company. Possibly he is moving, or his gas leaks, or his bill seems too high, or someone has offended him.

The gas company suddenly becomes very real, very important. The way things are handled by the company becomes exceedingly interesting, and the customer is quick to approve or disapprove.

If the office with which he deals is well managed, efficient, smooth running, he admires it, and he respects the gas company because of that office. He never sees or cares about the plant, the equipment, the board of directors, the financial standing.

Company Judged By Office

The office where the public is met, the routine and equipment of that office, the employes who work there—these are the gas company. This is where confidence, respect, good will, are won or lost.

It is with the methods and equipment of these offices that we shall deal primarily. We shall attempt in this series of articles to set forth, in a unified story, the best methods that have been developed in handling the particular office problems of the gas company.

We shall illustrate these methods by forms in actual use in various gas companies, and we shall consider their applicability to companies of different size. We shall consider also the problem of effective office organization in those offices which do not directly meet the public, but which are nevertheless vital to the success of the gas company.

The Pending File

We are starting with files, because the files should be the heart of the office. They should not be places where papers are stored away after there is no longer any need for regular and prompt reference to them.

There are such files; possibly there should be, in some places in the gas company. But it is not those files which we wish to discuss. It is the files which are a fundamentally active part of the day's routine, which function all through the day, every day, that we shall consider.

For every matter that is in process of execution or completion, whether it be a sales order, a purchase order, a service order, a complaint investigation, or a letter to which a reply is expected, there should be a file that will accomplish two things:

What the File Should Accomplish

First, it must show at all times the exact status of the matter under consideration, and it must show this status instantly, reliably and automatically.

Second, it must provide a method for bringing this matter to the attention of the proper person—automatically—if for any reason the completion of the routine in question is delayed beyond a definitely specified time.

This active file of papers regarding matters under consideration is called the Pending File. It takes the place of the piles of papers on the desk of the man who keeps all active papers right at his hand, "So that he won't forget any of them."

To be sure, this latter method of keeping in mind routine papers is rapidly passing. But it hasn't passed in the handling of letters or papers outside the general routine. There are many men left, and the gas companies have their full quota of such men, who believe that certain things should be kept on their desks if they are not to be forgotten.

It is to these men that we want to preach the idea of the pending file, and of the follow-up. They are taxing their memories with matters that should be cared for by the files, and by the file clerk.

How File Copies Are Routed.

Every one makes a file copy of every routine order, and a carbon copy of every letter. In the case of the order, copies are usually sent to various departments of the company. Somewhere there must be a central place to which these copies may return, so as to denote the completion or execution of the order. This place is the pending file. This control should be in the hands of the clerk operating the pending file, and this clerk should see to it that no order ever becomes lost or buried until the work which it indicates is finished.

It is possible to put a copy of every sales order, for example, into this one place, no matter if some orders are to be executed now and some six months from now; no matter if some orders represent a small amount of money or work, and some represent a very large amount of money or work.

If you will study your sales orders, your complaints, or any of your routine papers, you will find it possible to incorporate in one place a central control for the routine represented. There should not, and must not, if you are to handle these papers effectively, be various piles of unexecuted papers in various places in the office. There must always be only one place to look for any paper of a certain class. That place is the pending file.

We shall consider in subsequent articles the exact application of the pending file to the separate routine papers of the gas company.

We would emphasize here the fact that the operation of a pending file is not complicated or mysterious. All that is needed is an alphabetical or numerical index, one or more file drawers, a routine that gets all copies back to this file and follows them up if they don't get back. And, of course, accessibility of the file to all concerned in securing information from it is essential.

Follow-Up

The next important consideration is to insure the papers in the pending file coming up for attention at the proper time, in case the work represented by them is not completed.

We have seen many different and complicated methods of following-up orders and letters, most of them wasteful of time and equipment, many of them ridiculous.

The proper method, of course, depends upon the office and the particular problem to be met. We shall discuss briefly here the two most common methods, and shall later show their specific applications to the problems of the gas company office.

The Tickler Method

This method of follow-up is used for letters, or for routine papers where the volume is small. The file clerk places the date on which the follow-up is to occur in the upper right hand corner of the paper. This date is usually predetermined, different types of letters or papers being assigned different fixed follow-up periods.

A tickler is made for every paper marked with a follow-up date. This is merely a small slip of paper, showing the name under which the paper is filed, its date, and the follow-up date. The tickler is filed in a small box file containing guides numbered from one to thirty-one, each guide representing a day of the month. Such box files with dated guides, as well as a set of monthly guides, may be purchased ready for use at any stationery store.

Each morning the file clerk removes the ticklers filed behind the date guide for that day. She then "pulls" the corresponding letters or papers from the file and puts them on the desks of the individuals who are to handle them. The ticklers are then destroyed.

Checking Answers

In case a reply is received to a letter marked for follow-up, before the follow-up date arrives, the file clerk knows that a tickler has been made when she sees the date notation in the upper right hand corner of the filed letter. Before turning over the letter and the reply to the person concerned, the file clerk must destroy the tickler. Otherwise the tickler will come up for attention later, and will cause unnecessary work.

In like manner, if orders are completed; that is, if all copies are returned to the pending file before the follow-up date arrives, the tickler should be destroyed. If the order is not completed, it is possible in many cases to have the file clerk do the tracing for the missing copies.

Filing is a profession. Trained file clerks are now taught tracing methods. Attention is paid primarily, in the education of file clerks, to the part played by the active files, not to the mere placing of papers in their proper alphabetical or numerical sequence.

The Visible Method

Within the last ten years the practice of visible record keeping has come into world-wide use. There is hardly a business office anywhere that is not using visible equipment for particularly active records.

Visible equipment is very effective in following up matters of routine, especially where the volume of such matters is large. Visible forms are designed to show on a visible line the name, number, or description of the record, and at the same time to show a set of date numbers, which are also visible. Over these date numbers, transparent colored signals may be placed, to indicate follow-up dates.

Since these signals are all visible when one drawer of a visible cabinet is pulled out, it is possible to see at a glance all of the cards which indicate a particular day as the follow-up date.

Signals Very Useful

The ease with which signals can be placed on modern visible record-keeping equipment, and the absolute protection offered by such equipment from signals becoming loose or pushed out of position, has made visible follow-up very popular.

We shall discuss in succeeding articles the particular application of visible follow-up to service orders, complaints, purchase orders, meter records, delinquent accounts, etc.

In this method the signal replaces the tickler file. Of course, there must be a visible card record in connection with the pending file in order to use the visible follow-up. Therefore, the tickler file is more satisfactory for ordinary correspondence because there is scarcely a card record by which letters could be followed up.

Other Follow-up Methods

The two methods described above have survived the test of simplicity and effectiveness. In contrast, we wish to note two other follow-up methods which are still widely used.

In some places the carbon copy of the letter or paper to be followed up is itself filed directly in a dated file. No tickler is made. No notations on the dated file copy are necessary, as the date of the paper itself serves as a guide to the follow-up date. This file is often called the "ten-day file" because letters are uniformly set ten days ahead for following up.

This method is quick at the beginning. And it would be very commendable if replies were never received, or orders were never completed before the ten-day period was up. The difficulty, when such "premature" replies are received, is obvious. Instead of the file clerk being able to go directly to the correct alphabetic position of the paper in the file, it is necessary for her to hunt through the various dated piles of papers in the follow-up file.

Of course, the incoming paper may show under what date the follow-up copy is filed. But this is not generally so, particularly in the case of letters.

Correspondence Separated—A Disadvantage

The principal objection, however, to the dated-file method applies to handling correspondence. It causes correspondence to be separated between two files. We can never be sure, when we call for the file on a certain subject, that some later letter is not in the dated file, awaiting a reply.

Another method uses signals which are fastened to vertical folders, and project above the folders so as to be easily visible. The folders for use with these signals are printed with numbers in squares from 1 to 31. The signal placed over a particular square indicates the follow-up date for a paper in the folder so signalled.

This method is very unsatisfactory. Such signal clips are easily knocked off the folders. The edges of the folders soon become worn and will not hold the signals. The element of sureness, so essential in follow-up procedure, is entirely lacking.

The tickler method and the visible file method are simple, direct, economical of time, and sure. It is these two methods on which we shall dwell in our discussions of particular office routine problems.

Conclusion

We have emphasized the pending file and the follow-up in this first article because they are absolutely essential in handling the work of every office. They insure two things: a place for every matter under consideration, and the certainty that every matter under consideration will be considered at the proper time.

In our next article we shall deal with complaint procedure in gas companies. We shall illustrate the best methods that have been developed for handling complaints, and shall also show the application of the pending file and the follow-up to this particular problem of office organization.

The Low Temperature Carbonization of Coal *

Description of carbonization processes

A. G. Fieldner

Complete Gasification

IN the report of the Giant Power Survey Board for Pennsylvania, issued in February, 1925, the following appears on pages 381 and 382:

"The outstanding commercial installation representative of by-product complete gasification processes is that of the Combustion Utilities Corporation, sometimes called the Doherty process. A plant was put into operation at the Hazel-Atlas glass factory at Washington, Pa., in the summer of 1924, following years of experimental plants in Denver, Colorado, and Toledo, Ohio. (See Fig. 14.)

"The main problem of this type of process is to overcome the binding or sticking of the charge of coking coal within the retort, which has been the major source of trouble in all gas producers attempting large production with our Eastern melting bituminous coals.

"The retort may be classed as of the vertical stack, internally heated, continuous operation, semi-combustion, gasification type, with recovery of tars and ammonia, producing large volumes of low B.t.u.

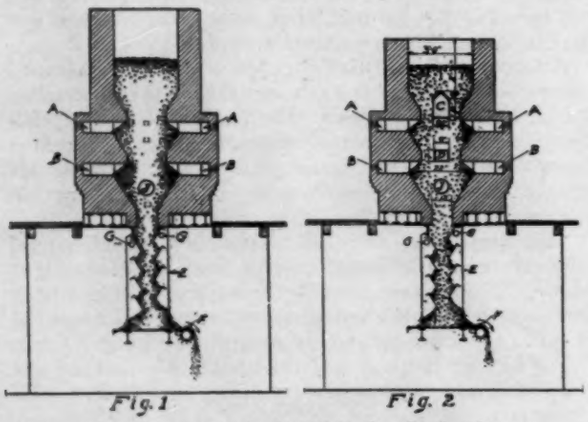

Fig. 1 *Fig. 2*

Fig. 13. Hood-Odell Lignite Carbonizer

gas of about 160 to 210 B.t.u. As constructed, the stack is about 100 feet high and about 26 feet outside diameter at the base.

"High volatile bituminous coal, crushed and mixed with a proportion of coke sufficient to keep the mass from becoming too pasty at any stage of the process, is charged continuously. A controlled air blast enters a few feet above the bottom. Preheating the air blast increases the rate of formation and especially the heating value of the gas. A portion of the coked charge accompanied with ash is withdrawn at frequent intervals at the bottom. The coke is screened and washed to separate it from the ash. The coke comes out in small pieces from nut size down to small granules. The coke is used to mix with raw coal to be charged again into the retort at the top.

"The retort can be so operated that less but richer gas is obtained up to about 300 B.t.u. per cubic foot, and a large proportion of coke is withdrawn, so that some becomes available for sale or use as a power plant fuel."

Coal Heated by Hot Products of Combustion Generated Outside the Retort Proper

Seidenschnur-Pape Process.—This process is of terest because it makes use of hot products of combustion, free from oxygen, for drying and distilling brown coal in two separate stages.

I saw an experimental plant of five to six tons capacity per 24 hours at Freiberg, Saxony, last summer. Figure 15 illustrates the principle of the process.

The raw brown coal containing 40 to 50 per cent moisture is charged into the drying chamber T and then descends into the distillation chamber S, where

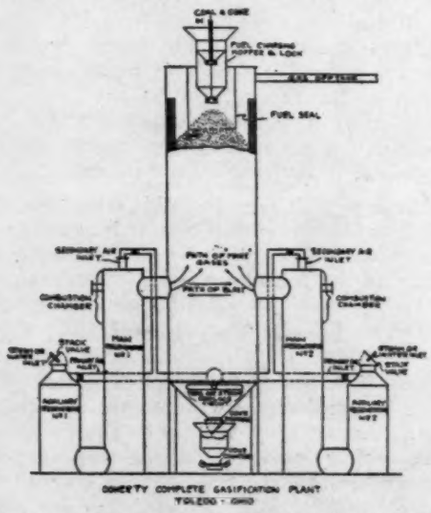

Fig. 14. Doherty Complete Gasification Plant, Toledo, O.

oxygen-free flue gases from the combustion chamber M enter at the bottom and leave at the top at a temperature of about 100 degrees C., and then pass to the tar-recovery apparatus. From S part of the carbonized residue goes to the gas producer G for generating the necessary fuel gas for the process; the remainder is discharged through a cooling chamber. It is used as a domestic fuel in special stoves designed to burn this fine-grained residue known as

* Fourth installment of Mr. Fieldner's Paper, read before Johns Hopkins University.

"Braunkoklenflammkoks."[13] This fuel is quite smokeless and burns with a short flame. It is said to contain from 20 to 30 per cent of tar free combustible volatile matter.

The hot producer gas from G passes directly into the combustion chamber M, where it is burned without excess of air; the necessary amount of air is supplied from the blower, H_1. The temperature of the hot gases entering the distillation chamber is further regulated by admixing a suitable amount of inert gases from the drying chamber T through the blower H_2. A suitable portion of the hot combustion gases from M is constantly added to the drying gas circuit in the maxing chamber m.

Figure 16 illustrates one scheme of circulating the gases. The experimental plant that I saw was arranged for other combinations as well, including the use of superheated steam.

Lurgi Process.—The Lurgi company at Frankfort, Germany, is also working on a similar scheme of circulating combustion products through a drying and a carbonizing zone (see Figure 16). As brown coals contain about 50 per cent of moisture, much more heat is required for drying than for carbonizing the coal. Neither of these processes are yet in commercial operation.

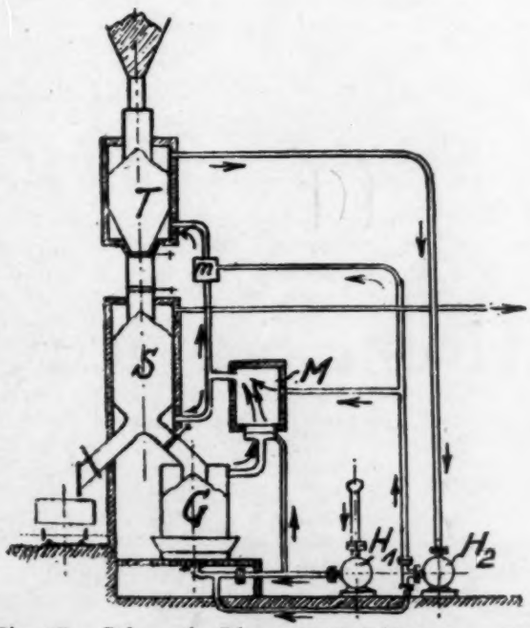

Fig. 15. Schematic Diagram of Seidenschnur-Pape Process for Distillation of Brown Coal

T=Drier *H^1=High Pressure Fan*
S=Tumefier *H^2=Low Pressure Fan*
G=Generator *m=Mixing Chamber*
M=Combustion and Mixing Chamber

[13]Seidenschnur; Braunkoklenflammkoks, Braunkohle, vol. 22, 1924, pp. 352-364.

Coal Heated by Sensible Heat of Hot Producer Gas Generated in Separate Producer or by Reheating and Recirculating the Low-Temperature Gas

Laing-Nielsen "Sensible" Heat Process.—Laing and Nielsen of England have designed a low-temperature carbonization process in which the coal is heated directly by hot producer gas or reheated coal gas circulated through the interior of the retort.

The cylindrical steel retort is lined with firebrick and lagged on the outside with heat insulating material. The coal is charged continuously into the

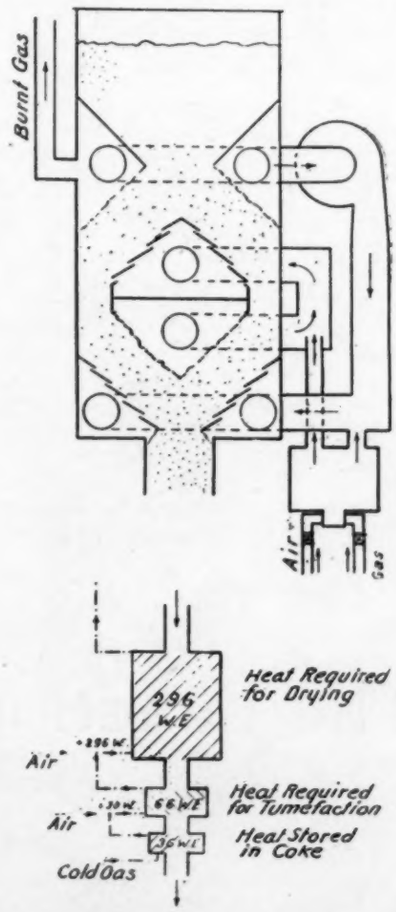

Fig. 16. Schematic Diagram of the "Lurgi" Brown Coal Distillation Process

upper end of the inclined cylinder, and travels toward the lower end over a system of baffles designed to secure intimate contact with the hot gas that enters at the lower end of the retort. Figure 17 shows a 100-ton a day plant recently installed in India. The retort is 7 to 9 feet in diameter and 90 feet long. No operating data on this plant have yet been published. It would seem that strongly coking or sticking coals could not be used in this process.

At the time of my visit to England last summer a 10-ton per day experimental plant was under con-

struction at Silkstone, Yorkshire, in which producer gas, steam, hot products of combustion or reheated coal gas from the retort may be used as a heating medium. Figure 18 shows the proposed arrangement for recirculating the stripped and superheated coal gas. It is hoped by this scheme to obtain a high B.t.u. gas approaching that of externally heated retorts and yet retain the advantages of internal heating.

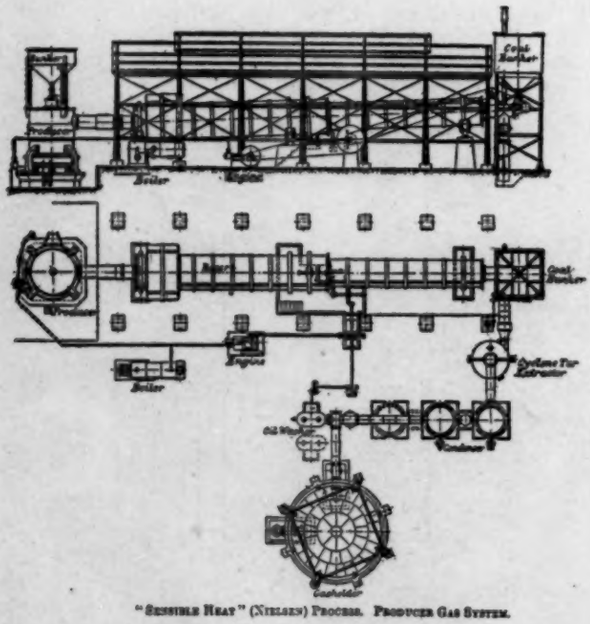

Fig. 17. *"Sensible Heat" Process*

Superheated Steam Processes

At first thought it would seem that superheated steam would be the best heat transfer medium for low-temperature carbonization. It has a relatively high specific heat; it does not dilute the distillation gases; and it permits the recovery of the light oils from the gases. However, there are two very strong objections which have prevented the development of any promising process using steam alone. These are: (1) The large heat losses in the latent heat of vaporization, combined with a large and costly condensing system, and (2) the cost of superheating equipment that will resist the strong corrosive action of steam superheated to the degree necessary for carbonization.

The auxiliary use of a small quantity of steam in other processes has been of some advantage in distributing heat through the charge and in increasing ammonia yields, as, for example, in the Scotch oil-shale process.

Coal Heated by Direct Contact with Molten Lead[14]

Several patents have been issued for heating crushed coal in direct contact with molten lead, whereby carbonization is completed in a few minutes. However, the unavoidable loss of lead makes these processes too expensive for practical consideration.

[14]Morgan, J. Stanley, The lead bath process of low-temperature carbonization. Thermal, Industrial and Chemical Research Co., Ltd., Process U. S. Patents Nos. 1,398,882, 1,479,323 and 1,479,363. British Patents Nos. 170,323, 170,617 and 172,046. Colliery Guardian, vol. 125, April 13, 1923.

The Function of Home Service*

Aids in selling gas and appliances—builds good-will

Anna J. Peterson

Director, Home Service Department, The Peoples Gas Light and Coke Company.

A HOME Service Department has a definite part to play in the sales program of a gas company. It takes up the job where the expert salesman on stoves has left off. It follows the gas range, or should, right into the kitchen where two women will meet on a common footing with one big mutual interest. What is this interest? The feeding of her family. She must bring that family into its rightful heritage of strength and health in their mental and physical bodies. To the average man, as well as woman, cooking is taken for granted. They know they must have three meals a day, but where? At home or elsewhere?

You pick up newspaper after newspaper and the big thing you see as far as women are concerned, is the lure of advertising to take meals out of the home. Magazine after magazine suggests foods already cooked to prepare in five or ten minutes. The trend is to cut down work. They say not a word about cutting down family nourishment, boost-

*Presented at the annual meeting of the Iowa Gas Association.

ing costs and making quite inefficient every member of the household in the business world.

Are Gas Men to Blame?

I wonder if we as gas people are not a little to blame for this. Do we realize that we are selling the most wonderful fuel in the world for cooking—in fact, the most wonderful fuel for anything done in the home? Are we so completely sold ourselves that we have all our friends and acquaintances talking about it? Are we alert for every opportunity to use that grand old slogan of ours, "You Can Do It Better With Gas"? Many times people say to me, "I hate to be razzed about it." A little razzing would do you good. You're putting it over, because they repeat "You Can Do It Better With Gas."

I'll admit to you frankly my present position as Director of Home Service has taught me there is no question that "You Can Do It Better"—I know it. Right here how many of you gas men know that you can make better toast with gas than with any other fuel in the world? Simple, but true. I do hope that I live long enough in the gas industry to see every magazine in this country, every signboard and newspaper carry this grand slogan of ours.

Home Service Director

As I have said, I feel that the very best way for every gas company to convince their women customers that gas is the indispensable household fuel, and keep them continuously sold on the idea, is by means of a Home Service Department.

The woman at the head of this service should be a person who loves and understands people; one who knows the science of cooking and has practiced it in her home; a woman with personality and a "Sunny Jim" smile which is really true because she believes in herself and in humanity. She will take the blue out of Monday, the apprehension out of Tuesday, put snap and joy into the other five days, as she makes the woman see the contented, healthy family she has developed through her service to them. To the woman customer she brings hours of comfort and leisure never had before. The dollar has done better work and still less energy has been used.

Director Must Engage in Local Activities

You must know all the activities going on in your locality where your director will come in contact with women. See to it that she meets every individual in the community connected with the Home Economics Department of the schools or colleges, the Home Service heads of all manufacturers and jobbers, the leaders in the women's club, church organizations or parent-teacher groups. You must have a definite plan of what you expect your Home Service Director to accomplish for your company. Confidence of this kind your director will need to make good on her job.

The Home Service Director and her staff must ring true with every word and statement they make pertaining to good, wholesome home cooking, making the woman customer see, and accept at once, that she is mistaken in the idea of eating outside of the home or paying high prices for canned food, low in nutrition.

Customers Taught Mastery In Using the Range

They must gain her confidence through teaching her mastery in handling her gas range. The top of her range has never been a question with her, but her oven and broiler have always held hidden, mysterious uncertainties. Any food troubles have never taught her it was her lack of knowledge. It was simply the inefficiency of that gas range. Stove manufacturers, realizing this, have put on the market today oven heat control, which will eliminate all of this apprehension. She must be taught now what temperature will take care of the different kinds of foods. Many women have quite a number of new ranges without this heat control. They may be taught to enjoy the same advantages of the regulated oven by being shown the use of an oven thermometer, getting as satisfactory results with a little careful watching. The Home Service Director has a special opportunity right here to make a satisfied customer out of this woman.

I firmly believe it is the business of a gas company, through its Home Service Department, to combat any advertising that shows a tendency to take the woman out of the kitchen. They lose gas sales and the family loses health and efficiency through the lack of wholesome home cooked food.

Home Service Program

One of the big things a Home Service Department does for a gas company is making a woman con-

A Unique Exhibit of a Single Range in the Window of the Pacific Gas & Electric Co., Emphasizing the Ten Most Important Features

tented and happy in her home cooking. It shows her that home cooking pays big dividends. As she checks off the weekly budget, she will find an actual saving in dollars and cents, not only in food, but in doctor and dentist bills, too. Home Service makes a special point of using left-overs and cooking the cheaper nutritious cuts of meat. It teaches her to do her work quickly, not puttering over it, wasting hours of time, but putting snap and vim into it, which keeps it from sticking to her. And all the time the gas company, who is giving this great comfort to the troubled home-maker, is selling gas.

This woman a year ago may have been troubled and disturbed at the gas bill. Today she looks forward to it. She may think it is a little high, but as a woman said to me a short time ago: "I was quite astonished to find my gas bill $4 for this month, but in checking off my previous month's grocery and meat bill, I found a saving of $14.50, which greatly offsets the $1.25 increase in my gas bill. I'm writing to the gas company to thank them for the wonderful institution they have established in the Home Service Department."

Lecture Demonstrations

To bring about these results, the Home Service Director will want to have daily or weekly free lecture demonstrations. As Director of Home Service for the Peoples Gas Light and Coke Company, I have found this schedule very satisfactory: On Monday, every phase of baking with breads, pies, cakes; on Tuesday, the certificate course with every standard dish from soup to ice cream; on Wednesday, meal planning; on Thursday, baking again, except during the summer when we have home canning; on Friday, party plans. Besides this regular program, we have special stunts like practical sewing classes, the making of rag rugs, or classes for girl scouts, camp cooking for men. The popular actress, Mlle. Caubet, gave a special lesson in French cooking, as did that clever little actress, Marie Langworthy, in making apple pie. Alice Bradley from the Boston Cooking School, and Mrs. Spencer from the United States Fish Bureau, have been our guests, giving demonstrations in our auditorium. Morning lessons on formal dinners and table service, with or without maids, have aroused keen interest, and introduced variety.

Recipe Work

We have a daily attendant in our main floor booth, who gives out five to six thousand recipes a day. From this booth we give a snappy twenty-minute food demonstration for business girls.

We maintain a phone and mail service to cover any household problem. Our customers are encouraged to use this service and the result is that we have about 2,000 phone calls a month and about 1,000 letters.

The Radio

I believe through the use of the radio the gospel of better homes and better gas burning appliances can be brought to more women than by any other method. I am completely sold on the radio. Every day at 11:35 A. M. I broadcast a food talk from Station KYW. One of my assistants, Miss Chambers, broadcasts a daily food talk at 10 A. M. from Station WBCN. We take up every phase of Home Service work over the air. At present we are having sewing lessons, and with this lesson a meal is planned for the oven, which gives full two hours for the women to sew without interruption.

Every Friday afternoon three of us appear on the Woman's Hour Program broadcast from Station KYW, Vivette Gorman giving clever talks on party plans and evening social functions; Mrs. Badenoch giving a radio cartoon featuring Home Service activities, and Anna J. herself giving a talk

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The Baking of the Wedding Cake

When grandmother was a bride, the baking of the wedding cake was a ceremony for the bride herself to preside over—for good luck. A very beautiful tradition it is, too, and brides of this June, as of old, are cherishing this quaint sentiment of the wedding cake.

This recipe has been handed down from bride to bride, to be baked in tiers, decorated, and cut at the table, or to be given to the guests in little boxes to "dream on".

White Wedding Cake

2 cups butter	8 cups pastry flour
4 cups sugar	30 egg whites
8 teaspoons baking powder	1 teaspoon almond extract
2 teaspoons vanilla	2 cups water

Cream shortening and sugar. Add flour and liquid alternately. Beat eggs until stiff. Add baking powder to these and fold into first mixture. Add flavoring. Pour into one 10-inch and one 15-inch pan, lined with paper. Bake in a medium oven.

(Your Name and Address)

A.G.A.-595

Baking the Wedding Cake on the Gas Range

or readings which will answer some very personal questions asked by radio pals.

I would suggest that every gas company with an operating radio station in their cities would arrange for daily or weekly talks so that your director may tell the world the joys of home cooking which can be done better with gas.

Co-operation

When I attended the Illinois Gas Convention at Springfield on March 17 I found two new phases of Home Service work that I had not given closest consideration up to that time: namely, mechanical refrigeration, and house heating with gas.

Since the housewives of America spend almost 95 per cent. of all the money used in the home, I presume it is quite fair to say they take care of about 95 per cent. of all furnaces needing attention in the individual homes.

As a Home Service Director, I can see a wonderful field of progress in this added line of work, in co-operation with the househeating department. The Home Service Department is an ideal place to display a house-heating plant, so that the woman will see at a glance the convenience, comfort and cleanliness such a plant in her own basement would give.

Mechanical Refrigeration

In co-operation with the mechanical refrigeration department, the woman is taught how much food she can safely save at the low, even temperature which she has with this machine, not possible to maintain in the ordinary ice box.

The delight of every woman is to serve beautiful salads and desserts. In less time than the snap of your finger, the woman can fill the trays with luscious desserts and salads, run them into the container of her ice box and forget them until the moment of service has arrived, no worry or thought about the ice getting low and dessert not setting. And all the time the gas company is selling gas.

I have mentioned "sales" several times. Now that sale to me means gas. The best results will be achieved in your Home Service Department by having it to all outward appearance a separate unit. Your Home Service Director will do more and better work if she does not feel she is tied up with sales of appliances and your customer will have more confidence in your director and her staff.

The women customers of a corporation are somewhat suspicious when such wonderful service is given away and, of course, they will be looking around for all chances to say "I told you so." No woman can resist the desire to possess the things the teacher is using in her demonstrations; a wonderful gas stove with oven heat control; hot water on tap; a washing machine droning back and forth with water kept at 212° degrees by that convenient gas flame; a gas-heated ironing machine ready to roll the moist linen to glossy smoothness. In this indirect way your Home Service Director will sell a great deal of your merchandise and appliances.

Conclusion

I think in the few facts I have given you here you can see the three outstanding big things a Home Service Department can do for a gas company: First, sell gas; second, appliances; third, the one thing every corporation must have—the good will of its customers.

Operating Without a B. T. U. Standard*

Experience in Denver remarkably successful

George Wehrle

Superintendent Gas Department, Public Service Company of Colorado, Denver, Colorado

IN the state of Colorado we have a law which is commonly known as the "Home Rule Law," by which the people of the city or town having a population of 2,000, as determined by the last United States Census, are vested with the power to make, amend, add to or replace the Charter of said city or town, which shall be its organic law and extend to all its local or municipal affairs.

Such charter, and the ordinances pursuant thereto in such matters, supersede within the territorial limits, and other jurisdiction, any law of the state in conflict therewith. It is the intention of this article of the State Constitution to grant and confirm to the people of all municipalities coming within its provisions, the full right of self-government in local and municipal affairs.

The city of Denver operates under the Home Rule

* Presented before the Convention of Illinois Gas Association, March 17 and 18, 1926, Springfield, Illinois.

Law and the Public Utility Commission of the state of Colorado has no jurisdiction, either as to rates or standards.

The Public Service Company of Colorado, which operates the gas utility in Denver, is operating under a franchise which fixes the rates, but does not regulate the standards of service, so that the company has been free to develop its business along lines which it considered economical and satisfactory to the customers as well as to the company.

A B. T. U. History

In the year 1920 the heating value of the gas supplied was 527 B. t. u. We started in January, 1921, to gradually reduce to lower values. We proceeded very cautiously and watched the effect carefully on the customers' premises. In 1921 the average heating value was reduced to 477 B. t. u. In 1922 it averaged 438 B. t. u., and by the end of that year was holding at the standard which we had set for ourselves at 400 B. t. u. At this time we have nearly three and one-half years of experience behind us in serving a gas of 400 B. t. u., at standard conditions, or 333 B. t. u. in Denver. In subsequent information we will attempt to show by the records available what has been the effect. There were two questions to be solved by experience: 1st. Would the consumption increase in a straight line ratio as the heating value was lowered? and, 2nd. Would it be possible to render good service with the proposed gas?

Consumption Increase

The first is a complex problem, theoretical arguments to the contrary notwithstanding. Customers' habits, economic and other conditions are influencing factors that are practically impossible to analyze in their actual value. We took selective lists of customers and kept track of their consumption and we studied individual accounts, and have made the best effort possible to analyze the record of our nearly 70,000 customers. I am not here to tell you the exact reason why the consumption for domestic use apparently has not increased proportionately as heating values were lowered, and those who wish may form their own conclusion. We have had conditions since 1920 which probably led to the practice of economy in the use of gas as well as everything else. On the other hand, we have had an efficient commercial organization in our company, that has sold a lot of additional appliances to existing customers. Then, too, families have a habit of growing and requiring more food to be cooked. And, perhaps, there is something to the contention that American people budget their utility bills in such a way that they pay the same amount, regardless of price or conditions. These are only some of the factors that are difficult to analyze in a study of this kind. If, however, the customers have obtained their required heat supply from 400 B. t. u. gas equally as satisfactory as they did with gas of a higher heating value, then they have not been seriously damaged, and we have reason to believe that we have lost no business due to the change. If we had not informed our public of the actual heating value of the gas that has been supplied for several years we doubt if they would yet know the difference, either from bills or service.

Explanation of Curve

In the accompanying curve is plotted the annual consumption of all domestic customers, showing three points, representing the years because we were only interested in the end points and the peak. The heating value over this period decreased from 600 B. t. u. in 1913 to 527 B. t. u. in 1920 and 400 B. t. u. in 1925. The annual consumption per domestic customer was 24,000 cu. ft. in 1913, 30,000 cu. ft. in 1920 and 28,000 cu. ft. in 1925. The increase from 1913 to 1925 in annual consumption was 17.5%, while the heating value had been decreased 33 1-3%.

We then desired to note the effect upon domestic electric consumption for the same period, so we plotted a curve for this on the same sheet and were astonished at the similarity of the two curves. Starting with an annual consumption of 286 kwh. in 1913, the peak was reached in 1920, with 375 kwh., and dropped back to 336 kwh. in 1925. This showed an increase from 1913 to 1925 of 17.4%, or almost the identical increase shown in gas consumption.

As to an analysis of these curves—we can account for the peaks coming in 1920 on both curves as being due to the extravagance practiced at that time, and the decline afterward must be due somewhat to economy. But the stopping point in 1925 is the same in both curves and we know the electric people have not changed the heating value of their kilowatts. Both divisions have been very active in selling appliances to increase consumption per customer. If the electric men have been successful we should be allowed to claim a little credit also, despite our B. t. u.'s.

Results of Individual Studies

A number of our individual employes, who were interested in the subject of heating value, studied the effect in their own homes. Following is my own experience. My wife doesn't know anything about B. t. u.'s, so she may be considered as an impartial operator. She doesn't allow me to influence her household habits in any way either.

In July, 1919, we moved into a house where we remained until October, 1924. The appliances connected were a cabinet gas range and a No. 1½ Lion water heater. There were no other means of cooking, though water was heated in winter by means of a coil in the heating furnace. We did not change our living conditions in any way until 1923, when we began spending most of the months of June, July and August in the mountains. I have a growing family of four children, ranging in age at this time from 4 years to 16 years. I have been employed steadily, so there has been no reason for enforcing household economy at one time any more than another. Following are the monthly consumptions from July, 1919, to December, 1925:

	1919	1920	1921	1922	1923	1924	1925
January		3,800	3,700	4,100	4,100	3,500	4,200
February		4,900	3,400	3,000	3,200	4,500	3,200
March		4,200	4,000	3,100	3,200	4,900	2,700
April		3,800	3,400	3,400	4,100	5,600	3,000
May		4,400	4,200	4,500	5,400	6,100	4,200
June		5,100	5,200	6,900	3,800	5,700	4,900
July	3,700	4,400	4,400	5,800	1,400	2,800	3,100
August	5,500	3,800	3,800	6,000	2,600	1,300	6,100
September	4,400	6,300	6,300	5,800	5,700	1,000	6,900
October	3,400	3,900	3,700	3,900	2,900	4,200	6,600
November	6,500	5,200	3,800	3,600	3,700	3,100	3,200
December	3,300	4,600	5,000	4,800	3,600	3,500	3,700
Total	26,800	54,400	50,900	54,900	43,700	47,200	51,800
Monthly Average	4,467	4,533	4,241	4,575	3,642	3,933	4,316
Monthly Average Deducting July, Aug. & Sept.	4,400	4,433	4,043	4,144	3,777	4,677	3,966

Average for 78 months..... 4,227 cu. ft.
Average for 57 months, omitting July, Aug. and Sept. ..... 4,186 cu. ft.

We can find nothing in these records which would indicate that my household has been affected by the lowered heating value. We have moved into a different house where we have the same appliances connected to a new meter, yet the bills are consistently the same as they have been for the past six year period. Personally, I do not know what I would gain if we went back to common standards of heating value.

One of our engineers recently moved to Denver from New Jersey, where the heating value of the gas was 535 B. t. u., and it was burned at sea level. A few days after coming to Denver his wife broiled a fish, just as she had been accustomed to in New Jersey, and burned it badly. She informed her husband that she was having considerable trouble in that way and believed she would have to learn to cook all over again as the gas seemed so much hotter in Denver. Some of our men have come to Denver from cities where they had used natural gas and claimed the service just as good and the monthly bills no higher than they had been in the other cities. Perhaps these experiences sound ridiculous, but they indicate that other factors influencing the use of gas are of more import than the actual heating value.

Importance of Laboratory Tests

We have made numerous laboratory tests, not only in Denver but in other places, on all kinds of appliances and with all kinds of gas. The results have been no different than those made by other engineers, the records of which have been published. However, the economy and serviceability of a gas cannot be judged by the result of laboratory tests, for gas is not used that way in the average household. Therefore, this paper simply records our general experience, which has been satisfactory to us.

We have been enabled through the use of low heating value gas to make low rates for industrial and house-heating use. We could not have supplied gas at the present rates in our situation had we been compelled to supply a gas of the commonly accepted standard heating value. We are treating metals, baking bread, cooking in practically every restaurant in the city, heating 400 homes, and performing numerous other applications satisfactorily with this gas. We are of the belief that where satisfactory service can be rendered the domestic customer with the same gas that can be profitably sold to and satisfactorily used by industrial and house-heating customers, that the heating value of the gas may safely be left to the discretion of the gas company.

Rates Advantageous to Domestic Customers

A distinct advantage to the domestic customer is the fact that through the sale of large volume loads for domestic and house-heating uses, we are enabled to make them a rate for additional gas of good load factor that lowers their average rate for all domestic gas used by them. We can afford to pay a premium in lower rates for summer water heating and ice machine use if we can make the gas cheap enough, and this low priced gas must in our situation be of low heating value.

From the standpoint of service our experience with 400 B. t. u. gas has been most satisfactory. There has been a decided reduction in stoppages, caused by deposits of condensible hydro-carbons, and we find it much easier to maintain uniform quality in the gas and good adjustment of the customers' burners.

Adjustment of Burners

We did not at once start a general adjustment of burners as the heating values were lowered, but adjusted all those with which the utilization men came in contact. In 1923 we began a systematic inspection of every customer's premises, during which all burners were adjusted and all conditions corrected that were not proper. At the same time we had the inspector fill out a data card which, among other things, included the attitude of the customer toward the company. At the end of the inspection, and this was from two to three years after heating values were lowered, the record showed that 94.73% of the customers were friendly, 0.86% were disinterested, 0.12% were unfriendly, 0.03% were hostile, and 4.26% were unknown.

We have always kept very complete records of all complaints handled in our company. A study of these records is interesting. The following comparison covers all complaints handled in 1925 as against 1920, when 527 B. t. u. gas was distributed:

Analysis of Complaints

We find that in the year 1920, with 52,302 customers, we received 15,446 poor pressure complaints. In 1925, with 70,635 customers, we only had 14,153 such complaints. While the number of customers increased over 35%, the poor pressure complaints actually decreased in number over 8%. The time interval between average complaints per customer increased from 40 months to 60 months, or 50%. This improvement is attributed largely to the reduction in condensible hydro-carbons in the low heating value gas.

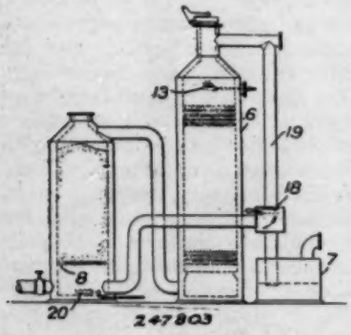
The adjust burner complaints we find have fallen

(Continued on page 552)

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

WATER GAS

In the water gas plant, which is patented in British Patent No. 247,803, a water spray, 13, is provided at the top of the superheater, 6, in order to supply steam for a "down run," and a second spray, 20, is provided below the grate, 8, for use during an "up run." The superheater is connected to a wash-box, 7, by a pipe, 19, fitted with a pivoted valve, 18, which enables a connection to be made directly between the wash-box and the space below the grate.



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RESULT FROM VERTICAL RETORT OPERATIONS

IN the German paper "Das Gas und Wasserfach," volume 68, pages 596 to 597, there are discussed the results obtained from continuous operations of vertical retort installations. Two such installations were tested. In one installation, chambers were provided with iron super-structure, and in the second, the refractory part of the oven construction was surrounded with an iron-concrete super-structure. In this case, the thickness of the concrete shell was about 10 centimeters. In spite of this fact the latter required less underfiring and during this operation no leaks occurred through the walls.

From a comparison of the coke output obtained from operating vertical retort installations continuously or periodically it was found that the coke from the continuous operation was in no way poorer in quality than that obtained from periodic operation. It was also shown that the properties of the coal used were determinative for the quality of the coke produced. However, it was also found that when the coke was only moderately well-caking, it was impossible to obtain a good quality of coke whether the retorts were operating continuously or periodically.

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CHEMICAL REACTIONS IN THE GAS PRODUCER

AN investigation was made to determine how much information relative to the chemical reactions taking place in the gas producer can be obtained from the direct application of the law of chemical equilibrium. With certain assumptions as to the manner of operation of the producer and the character of the fuel used, data can be obtained for any given ratio of steam to air in the incoming blast: (a) the temperature at which the producer will operate continuously, (b) the composition of the resulting producer gas, and (c) the thermal efficiency of the producer. The ratio of steam to air in the blast which will give the maximum thermal efficiency can also be determined.

Incidental to the main purpose of the analysis, it is shown that although five chemical reactions are possible in the formation of producer gas, only three of these are independent from the standpoint of chemical equilibrium and as far as the final results are concerned only three need be considered. Choosing three convenient to the purpose, it is then possible to determine the amount of fuel burned according to each of these three reactions for any given ratio of steam to air in the blast.

It was concluded that:

1.—The nitrogen content of the producer gas increases with the temperature because less and less steam is being introduced with the air blast.

2.—Above 2100° F. the carbon dioxide and water practically disappear.

3.—If operated at a temperature of 1750° F. a maximum hydrogen content is obtained, but at higher temperatures the hydrogen content drops while the carbon monoxide content rises and remains practically constant.

4.—At very low temperatures (1300° F.), the water or steam goes through the producer practically as such and enters but slightly into reduction reactions.

5.—The efficiency of the producer increases with the temperature at which it is operated up to 2000° F. and then decreases because the amount of heat carried away by the hot gases leaving the producer increases with the temperature.

6.—The amount of steam in the air blast required to maintain a given temperature is less the higher the temperature.

7.—For maximum efficiency, under the assumptions made, approximately 0.4 pound of steam per pound of carbon should be used.

Industrial and Engineering Chemistry, 1926, 585-588.

As The Journal Views It

THE GAS OFFICE

The attention of our readers is called to the series of articles on gas office methods that starts in this issue of the American Gas Journal. This is a subject that should be of interest to every gas man that has anything at all to do with the office of the gas company. There are so many different ways in which offices can be managed and operated, and there are so many difficulties that arise in the workings of an office and so many chances for making errors in the organization that no one can really say that his method is the best until he has had an opportunity to compare it with others and to study the general principles and fundamentals that underlie all of this work. In this series by Mr. G. L. Harris, the gas man will have the opportunity of listening to a man who has had considerable experience along office organization lines, and whose plans have worked out successfully in practice.

Mr. Harris, in his opening article, strikes the keynote of the entire problem. It may not have appeared to be of sufficient importance to many gas men and gas executives to pay much attention as to how they should conduct their offices. But if they will stop and carefully consider the fact that the office is the only part of the gas company's property that the average gas customer comes in contact with, they will readily see that the importance of the office is far greater than they ever imagined. The customer walks into the office to pay his bill, to make a complaint or to get some information. The appearance of the office, the manner in which it is kept, the way in which the various parts are laid out, the ease with which one is directed to the proper point to obtain information—all the various external details make an indelible impression on that customer's mind. Furthermore, the manner in which he is received, the expedition with which his request for information is answered, the accuracy of what he is told, the satisfaction that he obtains when making a complaint; in fact, all the various workings of the office also impress him most strongly.

In other words, the customer's opinion of the entire gas company is formed by the treatment he receives in the office and by the external appearance of the office as well. He does not see the intricate equipment in the plant for making gas; he does not see the mass of detail which is involved in preparing the gas for his use; he does not understand and does not care to understand the work that has to be done to change the lump of coal into cubic feet of gaseous fuel. He cannot appreciate the ramifications of the organization that makes and distributes gas. All he sees and knows is the gas office and if that office is a poor one, then it is his conclusion that the gas company is a poor one.

It might also be said that the gas company sees through its office. The office is like the eyes in the head. They are what makes the impression on the human mind. The office is what gives the gas customers their conception of the gas company.

Hence it follows that too much attention cannot be paid to the office and to office details. Too much time cannot be spent in improving the efficiency of the office. It is with this thought in mind that we have arranged for the aforementioned series on office methods and management. We are glad again to call the attention of our readers to this excellent series which, when completed, will form a veritable hand book on office methods in the gas industry.

THE LABORATORY APPROVES APPLIANCES

The first list of approved appliances, issued by the Testing Laboratory of the American Gas Association at Cleveland, Ohio, was recently published in the American Gas Journal. The issuing of this list was an event of considerable importance to the gas industry; in fact, its significance lies much deeper than might first be supposed.

When the project of the testing laboratory was first broached and information regarding it was broadcasted, the American Gas Journal was glad to give these plans due publicity and to offer its aid in furthering them. The laboratory project was seen to be one that would have a very important bearing on the future of the gas industry. It is not so much that the laboratory would stamp appliances as

approved, after having put them through a careful test, although this in itself is an important function and one that should by no means be passed by with a mere word. But it rather is the feeling that is inspired in the gas customers that they are being safeguarded against inferior appliances that marks the importance of this undertaking.

And this, to our minds, is the most important consideration, the element of security and of official approval that stamps appliances sold by gas companies and used by their customers, that makes the latter feel that the national gas industry is working with might and main for their benefit. It is just that the laboratory is another indication of the character of service the gas industry renders its customers. It shows again the progressiveness of the industry and demonstrates clearly to the public at large that the gas industry is one that has the interest of its customers at heart. For, after all, the real beneficiary of the laboratory will be the public that uses the appliances.

Before leaving the subject it would be well to mention that the gas industry itself will benefit quickly from the workings of this laboratory. It will be helped materially by the preventing of sales of cheap, poorly constructed gas appliances that have no business to be on the market. And as every gas man knows, in preventing the sale and use of such appliances it will reduce considerably the number of complaints made to the gas companies regarding the supposed bad quality of the gas, when the real fault lies in the poor design and cheapness of construction of the appliances in which the gas is used. The laboratory should do much to remove this condition, which is so unfair to the gas industry.

Sell the Range Now

A tie-up with canning helps sales

J. B. Dillon

THE more I think of it the more I feel certain that we can sell some gas ranges right now if we will trim our window and advertise in the local newspaper with an illustrated advertisement, a replica of the window.

Get a cardboard representing a woman with a smeared face, an old coal stove, a table with fruit jars, and have her face the front of the window; line the floor about the stove with a few small lumps of coal, ashes, scattered about the card sign:

'THERE IS NO EXCUSE

"For this woman to punish herself like this. It's canning season and she is trying to accomplish the work with an old coal stove. The heat is unstable; ashes are mixing with her otherwise good fruit and she is wasting much valuable time trying to keep the fire going. Canning, to be done right, must have the proper heat, and you can only get this—to the best advantage—by using a gas range. Come in and let us explain."

The Gas Side

Now partition off the window and to the right of the old coal stove show a woman neatly attired, the table with a lot of jars of fruit and the gas range in her kitchen. Everything is spic and span. The card sign:

"WHY AM I HAPPY?

"Because I have all my canning done and it required but a little time. I do not know how I ever got along without this gas range, but I do know that my old coal stove nearly drove me crazy, and I dreaded the canning season. But those times have gone forever. Honest, the operation of my gas range is less than what it cost me to run the coal stove and I am not bothered with excessive heat, coal, ashes or a fluctuating heat, but get all the heat I want within a moment and get rid of it about as quick. You can do as well as I can if you get one of these ..... gas ranges."

Yes, there is a sale in this kind of advertising or else everybody has a gas range, and we know better than that. Too many of the folks think that the operation of a gas range costs more than the operation of a coal stove, and it is just the reverse. Yes, reverse, because it takes a ton of coal about every thirty days for a kitchen stove, not considering the worry of it all. Now, a gas range need only be "fired" when wanted for specific purposes and the cost for the month's intermittent operation is less than the cost of a ton of coal anywhere in the United States. Now it's up to you!

GAS MERCHANDISING

Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

TELL THEM AND YOU'LL SELL THEM

NOT long ago we read an article telling how a small gas company that had been poorly managed and improperly operated had been built into a paying proposition within a period of about four years. The article was an interesting one and the man who wrote it did just what he claimed. He said in substance, "we made a complete canvass of the city to ascertain the customers' and citizens' attitude toward the company and to assure them of our intention to render good service." WE did that, and it may prove of interest to other gas men, who have to confront such a situation, just how the work was undertaken and what the results of three months' effort were.

First Class in every Respect —1—

After having a proper form printed, upon which space was provided for name, address and whether or not gas was used, together with a list of appliances, this writer undertook to cover the complete distribution system, to learn who used gas, who did not use it, what appliances were used and what the people thought about the gas company in general.

No lists were taken from the customers' ledgers, the only data we had to work on was a so-called street main map.

A Systematic Survey

"Taking this map we listed the streets and points where the gas mains were supposed to start and stop on each street. This done we started to make visits, calling from house to house and from street to street until the whole distribution system was covered. We would go up to the door, ring the bell and when we got the woman of the house to the door we would tell her who we were. 'From the g-a-s company,' she would say, and then proceed to

Sell the Caretaker —2—

tell us what she thought about gas companies and gas men in general. It was very discouraging the first day or so. We were as welcome as smallpox, but finally we began to sense a difference. We began to be welcomed now and then and every day or so someone would be found who did not think the gas company was such a rotten lot and as time went on things brightened up and in our rounds we ventured to suggest that possibly the customer would stop at our store and let us show him a new gas range, water heater or space heater. We had every kind of a range or heater anyone could want.

"The former manager had 'tested out' every appliance known to the gas industry. They did not know the gas company sold stoves and heaters. We had worked out a display that would cause you to think you were at an A. G. A. meeting at Atlantic City, and when we told them what we had and began to advertise the fact we began to make sales. Our canvass covered approximately 1,000 homes and we had this list to check against the consumers' ledger and when this work was undertaken we found out a great many things that we had not dreamed of finding. We found meters that had never been accounted for, meters that had not been read, accounts that were sadly neglected, in fact any and everything that the most vivid imagination could conceive and which would naturally give any plant the record for highest amount of unaccounted-for-gas in the coun-

Where their efforts were Spent. —3—

try." But these things were gone into generally and sales work was started and, as the writer of the article said, the property is now in good shape.

This accomplishment was made possible by first acquainting the customer with the fact that the new company was aware of a bad situation and that in face of it they were going to make good through a policy of "the customer be pleased." To accomplish this the customer was visited and told in person and then retold the story each day through newspaper advertisement. By the efforts the company made to satisfy, "clean up" in some manner "satisfactory to the customer" each and every kick made. Once folks found that the company earnestly desired to provide them good gas service, the task became an easy one; in fact, there was a very noticeable difference in the attitude of the populace toward the gas company in a week after the house-to-house canvass and advertising had been in progress. News travels fast in small cities and especially news of service rendered, which, by the way, brings up the fact that in making the canvass many adjustments were made and hundreds were made by the shop, thus starting to build up favorable public opinion. Tell them and you will sell them!

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OPERATING WITHOUT A B.T.U. STANDARD

(Continued from page 547)

off in a similar manner. In 1920 we received 20,432 and in 1925 only 18,615. This is a reduction of 9%, while the number of customers increased 35%. The time interval between an average adjustment complaint has increased from 30 months to 45 months, or the same 50% improvement shown in poor pressure complaints.

Some of the more minor complaints are significant of the improved service. Everyone knows how sensitive the adjustment of a lighter on a gas range is. In 1920 we received 709 complaints of this nature, as compared to 137 in 1925. The time interval here is startling, for it is extended from 76 years to 500 years, or an improvement of 560%.

High Bill Complaints

High bill complaints are the best indication of service that we know of, for if service is unsatisfactory the size of the bill is of no consequence in the registering of a complaint. In 1920 one customer out of every 9.34 registered a complaint on his bill. In 1925 one in every 10.64 complained. The time interval between complaints was thereby increased from 112.1 months to 127.6 months, showing an improvement of 15.5 months, or 13.4%. We must bear in mind, too, that psychology played a part, for in 1920 the people were not watching living costs as closely as they were in 1925.

The low number of industrial complaints in 1925, despite the increased number of industrial customers and volume of business, is indicative of the serviceability of this gas for industrial uses. While we have not listed house-heating complaints in this comparison, because we had no such customers in 1920, we actually averaged one complaint for each house-heating customer during the year 1925.

The records show that during the year 1920 we handled 53,834 complaints of every character from our 52,302 customers, while in 1925 we handled 54,513 from 70,635 customers. This increased the average time interval between complaints from 10.4 months to 15.5 months, or an improvement in service of nearly 50%.

Inspector's Work Important

Naturally, the inspection work that has been done has had an effect upon the improved service conditions, and we are strongly convinced that the success or failure of any selective standard of heating value from the service standpoint, is dependent largely upon the zeal displayed by the company in rendering service. We have been convinced ourselves by our own experience that a high grade of most satisfactory service can be given the customer with a gas as low in heating value as 333 B. t. u. as burned.

Recently we have had a similar experience in our property in Spokane, Washington, where the heating value was reduced by the Commission from 530 B. t. u. to 450 B. t. u. We attained this reduction by mixing blue gas with a coal gas that had been diluted with producer gas. We dropped the 80 B. t. u. in two steps, without affecting the customers. We planned to start a systematic inspection and adjust-

(Continued on page 554)

	1920 Per Customer Per Year	1920 Time Interval Between Complaints	1925 Per Customer Per Year	1925 Time Interval Between Complaints
Gas Leaks	.196	61.2 Mos.	.184	65.2 Mos.
Poor Pressure	.297	40.4 Mos.	.200	60.0 Mos.
Adjust Burners	.390	30.7 Mos.	.263	45.7 Mos.
Adjust Lighters	.013	923.0 Mos.	.002	6000.0 Mos.
High Bills	.107	112.1 Mos.	.094	127.6 Mos.
Clock Meters	.014	920.0 Mos.	.018	666.6 Mos.
Industrial	.007	1740.0 Mos.	.003	4000.0 Mos.
Miscellaneous	.126	95.2 Mos.	.009	1333.3 Mos.
Total	1.150	10.4 Mos.	0.773	15.5 Mos.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

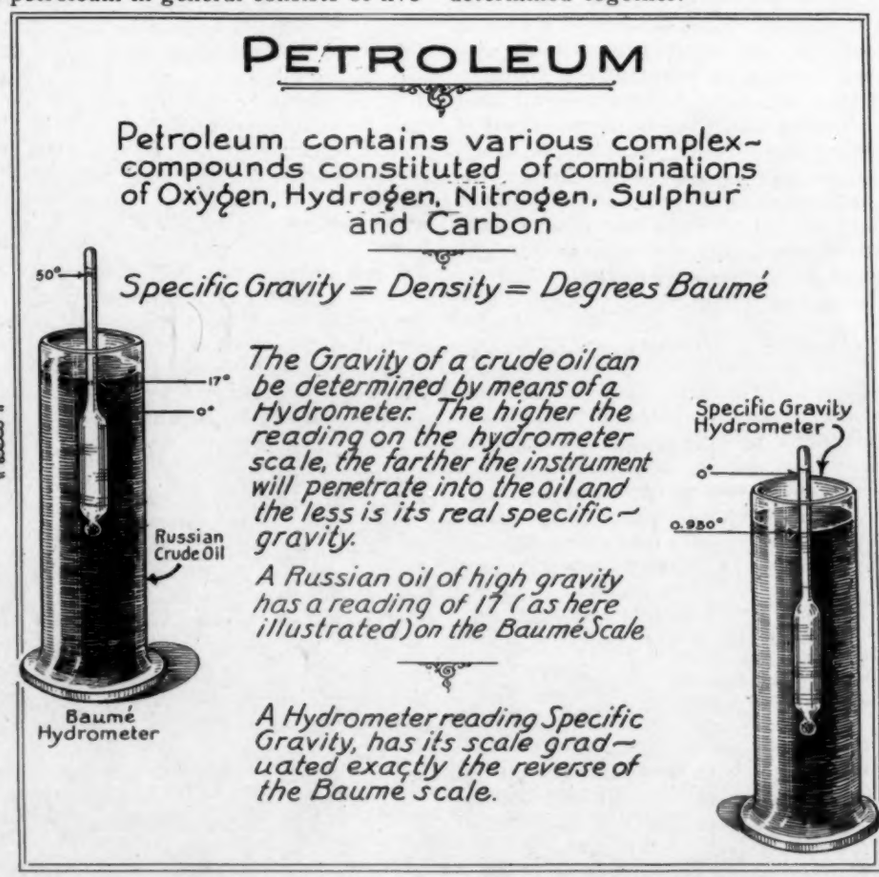
Lesson No. 124

Combustion

Composition of Petroleum

In the former Industrial Gas Lesson it was mentioned that there are in general three kinds of petroleum. Thus petroleums are either of paraffin base, asphalt base or the mixed base. It was also mentioned that petroleum in general consists of five elements: carbon, hydrogen, nitrogen, oxygen and sulphur, and these elements are combined to form various products, principally hydrocarbons—hydrocarbons, of course, containing only carbon and hydrogen—which constitute the complex mixture known as crude oil.

Crude oil can be analyzed in various ways and the results obtained can be used to differentiate between various types of oil. One method which is used on crude oil as well as on other fuels is called ultimate analysis and in this method the percentages of carbon, hydrogen, oxygen, nitrogen, and sulphur are determined. In general, oxygen and nitrogen are determined together.


PETROLEUM
Petroleum contains various complex-compounds constituted of combinations of Oxygen, Hydrogen, Nitrogen, Sulphur and Carbon
Specific Gravity = Density = Degrees Baumé
50°
17°
0°
Russian Crude Oil
Baumé Hydrometer
The Gravity of a crude oil can be determined by means of a Hydrometer. The higher the reading on the hydrometer scale, the farther the instrument will penetrate into the oil and the less is its real specific-gravity.
A Russian oil of high gravity has a reading of 17 (as here illustrated) on the Baumé Scale
A Hydrometer reading Specific Gravity, has its scale graduated exactly the reverse of the Baumé scale.
Specific Gravity Hydrometer
0°
0.930°

The following table gives the ultimate analysis of a number of different petroleums.

Discussion of Table

In the last column of this table the gravity, or degrees Baume is given. The specific gravity or

ULTIMATE ANALYSES OF CRUDE OILS

(Continued from page 552)

Source	Per Cent. Carbon	Hydrogen	Oxygen plus Nitrogen	Sulphur	Gravity, degrees Baume
Pennsylvania	84.9	13.7	1.4	...	28
West Virginia	83.5	13.3	3.2	...	30
Ohio	84.2	13.1	2.7	...	28
California, Bakersfield..	81.5	10.0	6.9	0.55	15
Texas, Beaumont.....	84.6	10.9	2.9	1.63	22
Mexico	83.7	10.2	..	4.15	22
Russia, Baku	86.6	12.3	1.1	...	17

the density of a crude oil is a very important characteristic. It of course indicates how heavy the oil is in respect to water. In interpreting the density figures, however, it must be remembered that the larger the Baume reading the lighter the oil. For the scale on the Baume hydrometer is graduated in such a manner that the further down in the liquid the instrument sinks, the higher the reading on the hydrometer scale corresponding to the level of the liquid. Of course the fact that the instrument sinks to a greater distance into the oil indicates that the oil is not so viscous or so heavy as another in which the instrument does not penetrate very far.

The specific gravity of crude oil is important because it tells in a way how much of the more valuable lower boiling products it contains. Thus a crude oil which contains a considerable amount of gasoline will naturally have a low specific gravity corresponding to a high Baume reading. On the other hand, the crude oil that contains very little gasoline and kerosene, but considerable high boiling point products, giving almost entirely gas or fuel oil on distillation, will have a high specific gravity corresponding to a low Baume reading.

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(Continued from page 552)

ment program, but postponed it as the lowering of the specific gravity seemed to make readjustment unnecessary. We are watching the complaints closely and so far they have had a tendency to show a decrease.

To supply gas of the commonly accepted heating value standard requires that the gas must be either coal gas of a rather high degree of purity or carburetted water gas. If we supplied such a gas in the form of coal gas we would have to find a market for coke equal to 50% of the coal used, which would be a difficult problem in our situation, where an abundant supply of satisfactory lignite fuel is available at low prices. In addition, there would be the problem of marketing large quantities of tar products in a sparsely settled territory, or take it to a highly competitive market at vast distances remote. The matter of disposal of ammonium products is a problem well known to all gas companies right at this time.

The other alternative of supplying carburetted water gas requires the use of expensive enricher, the economy of which you are all familiar with.

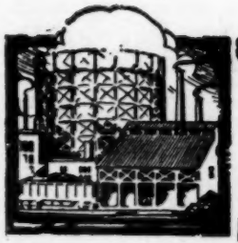
Economics of Gas Production

In a study of the economics of gas production in our situation it is found that a gallon of gas oil contains 140,000 B. t. u. and costs approximately six cents in Denver. A ton of our gas coal contains approximately 25,000,000 B. t. u. and costs $4.60. We therefore obtain in the gas making materials 23,333 B. t. u. for one cent in oil and 54,350 B. t. u. for one cent in coal. We recover in the form of gas about 103,000 B. t. u. from each gallon of oil used, or 17,140 B. t. u. for a cent, and recover from each ton of completely processed into gas 15,000,000 B. t. u., or 32,600 B. t. u. for a cent. The material cost per B. t. u. recovered from oil is almost twice as much as the cost per B. t. u. recovered from coal when the coal is completely processed. The economy of curtailing the use of oil in Denver is therefore apparent. A gas of 400 B. t. u. heating value, composed of a mixture of pure coal gas and the blue gas made from the coke produced in the coal gas plant, in our situation is the most economical gas which we can produce on a practical scale. It is readily seen that the cost per B. t. u. in this gas is considerably lower than would be the cost per B. t. u. in a gas where enrichment with oil is necessary to meet high regulatory standards.

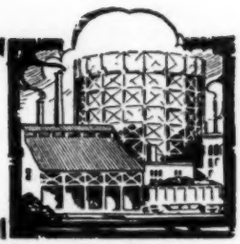
In conclusion, let me state that the Colorado Public Utility Commission, although not having jurisdiction in the matter of rates or standards of service in Denver, was the first Commission in all the states to adopt selective heating value standards. Their engineers had the opportunity in this matter of studying the experience of the Denver company, where they had watched the results of our experiment closely. All of the Commissioners and Engineers lived in Denver, so that they also had their own personal experiences and that of their friends to guide them.

In 1924 the Commission of the State of Alabama adopted the identical rule for selective heating value standards as that of Colorado, and in the same year the Commission of the State of Washington adopted a somewhat similar rule. In both of these states the Commissions were given testimony of the experience of the Denver company.

Were we to return to higher heating value standards in Denver we are of the opinion, after five years of actual experience with low heating value gas, that our customers would profit not at all by the change, while we know that as a company we would sustain a financial loss.



NEWS OF THE GAS INDUSTRY



Sales Conferences Draw Large Attendance

Increasing Emphasis Is Given to Sales Possibilities at Mohonk and Gloucester Meetings

The Commercial Section of the American Gas Association has brought to a successful conclusion two regional sales conferences in the New York and New England districts. The first of these, held June 3, 4 and 5 at Lake Mohonk, New York, drew an attendance of some 200 executives of the New York-New Jersey area, and was sponsored by the New York Regional Sales Council, of which G. M. Karshner of the Consolidated Gas Company of New York, is chairman.

Following the precedent established in previous years, several speakers from other industries were placed upon the program of the Mohonk meeting, and these men brought to the aid of the gas men their experience and thought on problems similar to those of our business. The increasing interest in the selling side of the gas company activities was amply demonstrated by the appearance of a number of the higher executives at this conference.

Colonel Oscar H. Fogg, vice-president of the Consolidated Gas Company of New York, and Clifford E. Paige, vice-president, Brooklyn Union Gas Company, both gave inspiration to the aims and efforts of commercial men by their highly encouraging papers on the importance of the sales end of the utility business. Emphasis throughout the sessions was placed upon securing wider and more intensive use of gas in the home. A number of under-developed uses for gas—such as garage heating, incineration, refrigeration, etc.—were pointed out as fruitful fields for building balanced loads. At the same time, as was stressed by Major Alexander Forward, secretary-manager of the American Gas Association, in a comprehensive review of gas developments, the yet unsaturated field for water heating, with its desirable large load characteristics, is still susceptible of great cultivation.

Some of the more specific and immediate possibilities and means of building and keeping additional domestic load were discussed in greater detail by A. Gordon King, service engineer of the A. G. A., and others.

Because of the similarity of the sales problems in the various companies represented at this gathering, the members were able to have the more localized, or regional, subjects discussed at length in the informal evening sessions—which created unusual interest among those attending and added greatly to the practical value of the conference. One entire evening was devoted to a lively discussion of range oven sizes in which both the representatives of the manufacturers and the gas company delegates participated. The growth of apartment house life in this region was considered to be the cause of the tendency toward smaller oven sizes which, from several viewpoints (and particularly that of adequate service and comfort for the customer) was generally deprecated. As a result of this session, a unanimous opinion seemed to prevail that the industry should advocate not less than the fourteen-inch oven size for apartments, and sixteen-inch ovens for homes.

The fine facilities for golf, tennis, bowling, baseball and other sports provided by the location were enjoyed by the delegates and their wives in the afternoons of the conference. A number of prizes were awarded for the winners in various events, which still further heightened the interest in this phase of the program.

The New England meeting, which was held at the Hotel Thorwald, Gloucester, Mass., on June 11 and 12 was under the leadership and jurisdiction of the Sales Division, New England Gas Association, and was the second meeting of this kind held in that area—the first being in 1925—but nevertheless developed as wide and intense an interest as its brother council's meeting in New York (now in its third year). More than 100 delegates from both larger and smaller companies in New England gathered at Gloucester for the three-session conference.

A somewhat similar program of addresses prevailed and several of the same speakers that were at Mohonk presented their subjects at Gloucester, including Major Forward, Colonel Fogg and Mr. King. One of the outstanding discussions which was given at this meeting was an address on refrigeration by gas, delivered by H. D. Valentine of the Peoples Gas Light and Coke Company, who is chairman of the Refrigeration Committee of the A. G. A. He emphasized the need for active pushing of the manufacture and sale of refrigerators using gas as a fuel—and yet pointed out the need for reasonable caution in placing machines on the market before they are mechanically sound.

As a result of this interesting paper the following resolution was offered and unanimously adopted:

"Resolved, That the New England Regional Gas Sales Conference goes on record as urging concentrated co-operative effort by the gas companies and manufacturers of absorption or adsorption type of refrigerating machines, through some form of development and sales council, in producing and marketing such units promptly and in quantity;

"And further, That copies of this resolution be sent to the New England Gas Association and to the American Gas Association for earnest consideration.

"M. B. WEBBER,
"J. L. EIGENBROT,
"J. H. SUMNER."

The success of these two sales conferences in 1926 indicates their continuance next year and points to the advisability and value of holding similar meetings in other sections of the country.

M. K. Burgner Quits as Head of Gas Company

Chambersburg, Pa.—M. K. Burgner has resigned as superintendent of the Chambersburg Gas Company after a most useful service to this community covering a period of twelve years. This action is entirely voluntary on the part of Mr. Burgner, who will hereafter devote his time to his large fruit interests.

Mr. Burgner has made a most efficient official. He took charge of the local gas plant when it was in need of attention and not only improved the service wonderfully but paid dividends on the investments, which had not been the case for years. Under his management the service has been all that could be desired. The consumers have been supplied with a high grade of gas, and prompt service has always been accorded the people where any trouble occurred. Mr. Burgner's withdrawal will be a serious loss to this community just at this time, especially when the plant has passed into new hands. Who will succeed Mr. Burgner has not been made known. He will remain with the company until his successor is chosen.

* * *

H. J. Forward Joins Albuquerque Company

Sheridan, Wyo.—H. J. Forward, until recently manager of the Sheridan Gas and Fuel Company, has resigned his position with that company to take the position of superintendent of the gas department of the Albuquerque Gas and Electric Company, Albuquerque, New Mexico. Mr. Forward was manager of the Sheridan Gas and Fuel Company for the past five years.

* * *

Brockton Gas Rates on a New Schedule

Brockton, Mass.—The Brockton Gas Light Company has announced a new schedule of rates for commercial users. Customers using in excess of 20,000 cubic feet per month will have a rate of 80 cents per 1,000 feet instead of the present rate of $1.05. Users of more than 50,000 feet will have a rate of 75 cents, a reduction of 30 cents.

J. H. Eustace of Peoples Gas Company Passes Away

Chicago, Ill.—John H. Eustace, vice-president of the Peoples Gas Light and Coke Company, this city, and employed by that concern for more than forty years and in the gas business more than 50 years, one of five brothers engaged in the gas industry in various parts of the country, died recently in Chicago.

Mr. Eustace was highly honored by his concern, being remembered on each birthday with a banquet by employes and officials and presented valuable gifts as was the case this year, when he observed his seventieth birthday anniversary in February.

The Peoples Gas Light Company is a link in the chain of public service corporations taken over by the Insull interests and Samuel Insull presented Mr. Eustace with a costly ring with six small diamonds, and a vase, in appreciation of his services on the occasion of his birthday anniversary this year.

John H. Eustace was known by the Chicago company as "the grand young man of the gas industry," ever keeping pace with the new improvements, always willing to put his best foot forward. He came to Chicago in 1885 as assistant superintendent of the Old Consumers Gas Company and had risen steadily since that time to his high position.

The brothers came from a "gas family," as their father, a former superintendent of the Keene Company, was in the gas business before them and taught them the trade. The other three brothers are Edward at Peoria, Ill., Charles at St. Louis, and "Jim" at Coney Island, besides Alexander of Keene. He also leaves a wife, Mrs. Josephine Eustace, and a sister, Miss Julia Eustace of Keene.

City Gas Company's Stockholders Meet; Directors Named

Binghamton, N. Y.—Stockholders of the Binghamton Gas Works recently held their annual meeting in the gas offices on Chenango Street.

Directors were re-elected as follows: Alanson P. Lathrop, New York City; William G. Phelps, Israel T. Deyo, Charles M. Stone, Hiram H. Woodburn, Edwin S. Truesdell, Charles W. Tither, Fred J. Baumann and Charles E. Bennett.

A report of the business of the company for the year ending April 30, 1926, was presented. It was stated that the total output of the company for the last twelve months was 602,231,660 cubic feet, an increase of 8.7 per cent. over the previous year.

* * *

May Buy Oklahoma Gas

New York, N. Y.—Reports have been received from Tulsa to the effect that the Oklahoma Natural Gas Company would probably be sold shortly. The Standard Gas and Electric Company was mentioned as a probable purchaser, but inquiry at the latter's office here failed to produce any confirmation of the report. The Oklahoma Natural Gas Company has a capital of $15,000,000 of $25 par stock and is listed on the Pittsburgh Stock Exchange. Gross business totaled about $6,000,000 annually.

* * *

Rates Approved at Albany

Albany, N. Y.—The Public Service Commission has approved a new schedule of the Consumers Natural Gas Company for natural gas supplied in the villages of Montour Falls and Watkins Glen. Schedule filed to become effective July 1, 1926, operates to increase the rate for all gas consumed for fuel, light and power in excess of 5,000 cubic feet per month from 50 cents to 75 cents per thousand cubic feet. Proposed rates are: $1 per thousand cubic feet for first 5,000 cubic feet, and 75 cents per thousand cubic feet for excess consumption per month; minimum charge $1 per month per meter. Discount for prompt payment (on or before the tenth of the month following that for which the bill is rendered), 10 per cent.

Gas Company Files New Rate Schedule

Flint, Mich.—New gas rates will become effective in Flint as soon as a new schedule which has been filed with the Michigan Public Utilities Commission by the Consumers Power Company has been approved.

The revised schedule will give domestic users a reduction of five cents per 1,000 cubic feet of gas, which parallels a similar reduction allowed to industrial users last Fall. Other optional rates for water heaters and house heating, which are fixed on a sliding scale, also offer a reduction which would make the total reduction in rates average about six per cent., the city attorney said.

For water heating a schedule of 12.5 cents net for each 100 cubic feet for the first 30 hours, nine cents per 100 cubic feet for the next 30 hours and six cents per 100 cubic feet for all over 60 hours has been filed, with a minimum net charge of one dollar per month per customer. A similar sliding scale for house heating rates has been filed. The rate will be 12.5 cents per 100 cubic feet for the first 2,500 cubic feet, 10 cents per 100 cubic feet for the next 2,500 cubic feet and six cents per 100 cubic feet for all over 5,000 cubic feet. A minimum charge of $100 per heating season, October to May, is made for each user entering such a contract.

The object of the reduction in rates is to promote an enlarged use of gas and make it possible for the company to utilize its facilities and proposed additions in a way that will ultimately bring about a further reduction in rates, the report says.

* * *

Utica Gas and Electric Company To Increase Capitalization

Albany, N. Y.—Utica Gas and Electric Company, Utica, has filed a certificate in the office of the secretary of state authorizing an increase in the number of shares of its capital stock from 120,000 shares of $100 par value each, of which 80,000 shares are preferred and 40,000 shares common, to 560,000 shares, of which 60,000 are preferred stock $100 par value and 500,000 shares are common stock non par value.

A. E. Fitkin Merges 24 Utility Concerns in West and South

New York, N. Y.—Consolidation of twenty-four public utility properties of the Fitkin system, located in Kansas, Michigan, Missouri, Arkansas and Texas, and having a value of more than $17,806,000, has been announced by A. E. Fitkin & Co., managers of the plan. The properties are now grouped under the Commonwealth Light and Power Company and the Interstate Electric Corporation.

The new company will be known as the Inland Power and Light Corporation and upon completion of the merger new properties purchased, or under option for purchase, will be added to the corporation. All the common stock of the subsidiary companies to be owned directly or indirectly by the Inland Power and Light Corporation. The board of directors of the Commonwealth Light and Power Company, of the Interstate Electric Corporation and of the Tide Water Power Company, which owns a controlling interest in the outstanding common stock of the Commonwealth Company, and A. E. Fitkin & Co., managers, have approved the plan.

The merger's purpose is to erect for the Commonwealth-Interstate properties a financial structure similar to that of the National Public Service Corporation, largest of the Fitkin utilities, which will permit the absorption of new properties and expansion and betterments of existing companies.

New financing will call for the issuance of approximately $11,000,000 worth of securities and there will remain outstanding approximately $3,500,000 of underlying subsidiary obligations.

Gas Plant at New Ulm, Minn., Being Rehabilated

Chicago, Ill.—The Utilities Power & Light Corporation is rehabilitating the gas plant of the Interstate Power Company at New Ulm, Minnesota.

The additions now in the course of construction will total approximately $50,000 and the major items consist of the installation of a five-foot Western Gas Construction Company "by-pass" process water gas machine, together with a Sturtevant turbo blower, a 40,000 cubic foot capacity relief holder which will be erected by the Chicago Bridge and Iron Works, a Connersville Blower Company positive displacement type rotary station meter, and a 4-foot diameter by 20-foot scrubber. The scrubber will be furnished by the Western Gas Construction Company, along with the water gas machine. The building to house the machinery will be greatly enlarged by local contractors.

In addition the Utilities Light and Power Company is installing in the Rochester, Minn., plant of the Interstate Power Company a Sturtevant No. 3 turbine-driven booster unit and two Connersville positive displacement type rotary station meters—one, a totalizing meter, and the other to meter the amount of water gas made.

All of the above equipment has been contracted for and the work is now in progress. It is expected that the date of completion will be approximately August 1, 1926.

* * *

Gas Man Given Medal for Saving Worker's Life

Peoria, Ill.—The Central Illinois Light Company honored Michael Cosgrove, Sr., by the presentation of a McCarter medal from the American Gas Association at a meeting of all the employes of the company. His successful and heroic application of the Schafer Prone Pressure method of resuscitation in the case of a fellow worker overcome by gas won the medal for Mr. Cosgrove.

Public Utilities Still Expanding

Chattanooga, Tenn.—New construction work and the big expansion program being undertaken by the local utilities will shortly absorb any surplus of labor here. The Chattanooga Gas Company has advertised for 200 men and will increase its outdoor forces by that number. The increased force will probably be at work during the summer or until winter weather interferes with work.

Manager A. J. Goss stated that the force is being added to start the big undertaking of placing mains through the East Lake section. Several miles of mains will have to be laid and service pipes put in. The gas company plans to give service to the entire East Lake section.

The gas company also plans to undertake the work of putting gas up Lookout Mountain. The company is carrying out a progressive expansion program which has probably not been equaled before in the history of the company. The utility plans to put gas in practically every section where it is wanted. Work is also continuing in North Chattanooga. The company is extending its mains into the Highlands, which has built up within the past two or three years.

Joplin Gas Company to Buy Mine Systems

Jefferson City, Mo.—The Joplin Gas Company, Joplin, recently filed an application with the State Public Service Commission for authority to purchase and operate natural gas distribution systems in nine towns of southwest Missouri from the Kansas Natural Gas Company and the Empire Natural Gas Company. The places in which the systems are located are Alba, Purcell, Neck City, Oakland, Royal Heights, Duenweg, Prosperity, Porto Rico and Lakeside.

Gas Plant Planned

Sheffield, Ala.—With a franchise which states that they must begin installation of a gas system in Sheffield and Tuscumbia, John Flannigan and John F. Walters of Fort Lauderdale, Fla., are to start immediately on a gas plant for these places.

The city commission of Sheffield, presided over by Judge Allen J. Roulhac, granted the two operators and their associates the franchise.

The plant which they must install if they take advantage of their four months' option, according to Judge Roulhac, must be large enough, with sufficient mains to supply 20,000 people.

* * *

Derby Gas Company Is Sold

New York, N. Y.—Sale of the Derby Gas and Electric Company to the Citizens Public Utilities, a subsidiary of the Utilities Power and Light Corporation, has been made known by George H. Scranton, president of the Derby Company, of New Haven, Conn. The price agreed upon was $76 per share, and $150,000 has been deposited with the Birmingham National Bank of Derby.

The offer is conditioned on the deposit with that bank within sixty days of not less than 80 per cent. of the shares of the Derby Company. The deal involves approximately $7,600,000, it was said.

Northern Indiana Gas Merger Becomes Effective

Chicago, Ill.—Merger of the Northern Indiana Gas and Electric Company into the Northern Indiana Public Service Company has become effective with the filing of the merger agreement with the Secretary of State at Indianapolis and with the county recorders of the twenty-five counties in which the company will operate.

Completion of the merger makes the Northern Indiana Public Service Company one of the largest public utility companies in Indiana, with an annual gross business of approximately $10,000,000. The company will serve 119 communities with gas or electricity, or both.

The Northern Indiana Public Service Company was formerly known as the Calumet Gas and Electric Company, its name being changed on January 28. The companies now merged operated in the same general territory in northern Indiana and the merger will permit the development and financing of the properties to better advantage.

As a result of the merger it is declared that the development of the gas and electric business of the company can be carried on with increased efficiency and reliability of service. It is pointed out also that as a result of the merger, the advantages and economies of centralized generation of electrical energy and mass production of gas can be more fully utilized and extension of electrical service to rural communities further developed.

The company has twelve gas manufacturing plants with a total daily generating capacity of 25,340,000 cubic feet of gas. The company has available from its own electric generating stations and under contract from other companies with which it is interconnected, a power supply of 121,500 kilowatts.

Sales of gas by the two companies which have now been merged, last year totaled 4,061,102,800 cubic feet, and electric sales amounted to 182,757,962 kilowatt hours. The population served by the company is estimated at 560,000. The company furnishes electric light and power service to 59,804 customers and 116,596 customers are supplied with gas.

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Arkansas Natural Gas Company Declares Dividend

Pittsburgh, Pa.—The board of directors of the Arkansas Natural Gas Company declared a cash dividend (No. 14) of eight cents per share on the outstanding stock, payable July 1, 1926, to the stockholders of record at the close of business June 10, 1926.

Growing Up with the Tri-Cities

In a very attractive booklet entitled "Growing Up With the Tri-Cities," the Peoples Light Company of Davenport, Iowa, describe the history of utility development in the Tri-Cities.

The Peoples Light Comp was incorporated on January 30, 1888, the original incorporators being G. P. McClelland, G. W. Cable, F. H. Hancock, W. D. Peterson, S. Wylie, Jens Lorenzen and A. Burdick.

In 1906 all the gas, electric, heat and railway utilities of the Tri-Cities were united under the Tri-City Railway and Light Company with J. F. Porter as President and General Manager. Mr. Porter is now President of the United Light Properties in Kansas City and is on the board of directors of the United Light.

The faith of United Light in the future of the Tri-Cities is perhaps best shown by the fact that it has spent at least $1,000,000 here every year to improve and enlarge the community's utility systems. The company has been constantly o the alert to keep pace with the latest improvements in machines and equipment in order to provide service at the lowest possible cost.

The result has been that the citizens of Tri-Cities are favored with one of the most up-to-date and efficient gas, electric, and street railway systems to be found in the United States.

Peoples Light Company is now celebrating the opening of the new United Light Building which is a half million dollar office building directed to house the operating offices and engineering and construction offices of the United Light & Power Company, as well as the local utilities. The company has also remodelled an old car barn making it a fire-proof structure to be used in connection with each gas and electric department as a service building. These buildings were thrown open to the public for inspection on April 15 and 16.

United Light Company Has Sanitarium for the Tired and Sick Gas Meters

Davenport, Iowa.—Now that the United Light and Power Company has been safely and jubilantly established in its fine new building, and the tumult is over, during the which, the public learned much about dynamos, generators, transformers, voltage, transmission and superpower, architecture, equipment, facilities, decorations and service, let us say something about the modest, uncouth but faithful and accurate gas meter.

Very few persons rise up to extol, defend or even describe the lowly gas meter. For the most part, it spends its days and nights tucked away in some dark and unfrequented corner, forgotten, save when the keen eyed decipherer of its quaint, symbolical figures gives it a hasty glance, and the gas consumer gets his bill. The only thought the latter gives it then, is "I wonder if there ain't something wrong with that contraption?" The chances are there isn't.

If there is anything that is expected more than another of the gas meter, it is accuracy. It is constructed without artistic adornment. Its exterior don't look like much other than a tin can. But you should see its interior! Ah! It is full of strange and intricate things. There are springs, valves, tubes, discs, wheels, and above all a diaphragm! Yes, sir, a diaphragm! Think of that! And its diaphragm causes it to have much in common with human beings, because sometimes the diaphragm gets out of order and it has to have surgical attention.

In its new service building, the power and light company maintains a sanitarium for sick and tired gas meters. When their diaphragms falter, or when other of their delicately adjusted nerves and organs are not functioning properly, they are put on the operating table, where they are subject to keen and skilful diagnosis. They are ripped open, probed, tapped, riveted and unriveted; they are given baths, pressure tests and all sorts of surgical attention.

Extensive facilities are required to treat and heal gas meters. There are submerging and pressure tanks; gas test lines; delicately manipulated thermometers and a whole lot of new diaphragms are maintained in the process of restoring them to normal health.

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Offer for Derby Gas and Electric Company Stock Goes to Stockholders

Derby, Conn.—Stockholders of the Derby Gas and Electric Company have received notices in the mail informing them of the offer of the Citizens' Public Utilities, Inc., a subsidiary of the Utilities Power and Light Corporation, to purchase all shares of stock of the local corporation at the price of $76 a share. The notices state that the sum of $150,000 has been deposited with the Birmingham National Bank as a depositary, as an evidence of good faith. The notification also informs the stockholders that the directors and officers believe the offer to be a fair and reasonable one and recommend its acceptance.

For some time past negotiations have been underway for the purchase of the local corporation by various other corporations. From time to time rumors have been in circulation of the proposed sale of the company and various offers are known to have been submitted but some time ago George H. Scranton, president of the company, announced that the officers and directors had received a number of offers which were being considered and reassured the stockholders that their interests would be protected.

Contracts Awarded

The Enterprise Gas Company, of Egg Harbor City, N. J., is making improvement to its plant, for which it has placed orders with the U. G. I. Contracting Company, of Philadelphia.

The Derby (Conn.) Gas and Electric Company has launched upon a program of plant improvements and has engaged the U. G. I. Contracting Company of Philadelphia to install additional carburetted water gas apparatus that will give them increased daily capacity of over 1,200 M. cu. ft. The apparatus to be installed will be of the U. G. I. cone top type, equipped with Chrisman Cycle and hydraulic operating mechanism.

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Gas Progress in Georgia

Atlanta, Ga.—Figures compiled by the George Public Service Commission for the year 1925 show that the five principal gas plants in the state had gross earnings of more than $900,000 during the year, and net earnings of approximately $250,000 for the period.

Of the five companies on which the figures have been released, the Savannah Gas Company led with net earnings for the year of $188,326.13. The Macon Gas Company had net earnings of $47,437.51 for the period, and the Consumers Gas and Coke Company, of Waycross, showed net earnings for the year of $9,977.81.

The Macon Gas Company showed gross earnings amounting to $299,364.71, expenses of $251,927.20, and net earnings of $47,437.51. The Rome Municipal Gas Company showed gross earnings of $28,489.54, expenses of $24,619.47, and net earnings of $3,870.27. The Savannah Gas Company showed gross earnings amounting to $560,431.48, expenses amounting to $372,105.36, and net earnings of $188,326.13. The Valdosta Gas Company showed gross earnings amounting to $28,223.41, expenses of $21,474.22, and net earnings of $6,748.69, and the Consumers Gas Company, of Waycross, showed gross earnings of $45,297.40, expenses amounting to $35,319.50, and net earnings of $9,977.81.

The figures do not include the gas departments of many public service corporations in the state, whose profits are figured into the net earnings of $7,250,000 for the power companies of the state.

They do show, however, that during the past year gas companies in Georgia have made at least a fair earning on their investment, and that the situation was generally satisfactory. A complete survey of the field would probably show net earnings for the gas companies and departments of more than double the $250,000 covered in these figures.

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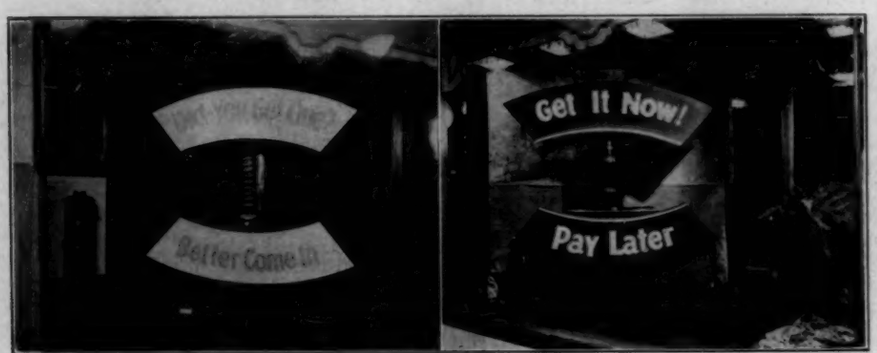
Portsmouth Gas Company Officers Re-elected

Norfolk, Va.—B. E. Ferguson was re-elected president of the Portsmouth Gas Company at the stockholders' annual meeting. Members of the board of directors were also re-elected. They were W. G. Gayle, R. S. Marshall, Dr. Joseph Grice and Francis S. McIlhenny.

President Ferguson's report dealt to a large extent with extensions of service during the past year and the prospects for growth and expansion for the ensuing twelve months. President Ferguson pointed out the success of the Cradock gas extension.



Attractive Coil Heater Display Arranged by Portland Gas & Coke Co., Portland, Ore.

Greensboro Gas Company to Change Name

Brownsville, Pa.—The Greensboro Gas Company of this city will be transferred to the Manufacturers Light and Heat Company of Pittsburgh, according to the officials of the local company, who have declared that the arrangements practically have been completed.

Negotiations have been underway for the past two months between officials of the two companies.

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Wildwood Gas Company Under New Management

Wildwood, N. J.—The Wildwood Gas Company has been purchased by the Southern Gas and Power Company, of Philadelphia. The price was not disclosed.

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Brazil Gas Company Changes Hands

Terre Haute, Ind.—The Brazil Gas Company has been purchased by the Gas Utilities Company, Inc., of Columbus, O.

The purchasers of the Brazil concern also owned the Citizens Gas and Fuel Company of Terre Haute. The plant will be operated out of Terre Haute.

The Ohio concern has made several purchases in the vicinity of Terre Haute recently. The plants of Bloomington, Ill., and Richmond, Ind., have been acquired by the new concern. Mr. Bascom's company now owns fourteen companies or plants scattered over five States in the Middle West and is expanding rapidly.

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Public Service of New Jersey Promotes Employees

Brooklyn, N. Y.—John A. Clark, Jr., an employee of the Public Service Corporation of New Jersey and predecessors for twenty-five years, has assumed the office of vice-president in charge of operations of the gas department, Public Service Electric and Gas Company, to succeed Henry D. Whitcomb, who died May 8. At the same time of his appointment by the board of directors, Herbert F. Ferris, formerly general superintendent of manufacture, was made general manager. Edward E. Earnshaw continues in the capacity of chief engineer.